



**Energy Efficiency and Renewable Energy
Federal Energy Management Program**

Federal Supply Sources:

- General Services Administration (GSA)
Phone: (816) 926-6760
www.fss.gsa.gov
www.gsaadvantage.gov
- Defense Logistics Agency (DLA)
Phone: (800) DLA-2852 or (215) 737-7950
www.dla.mil
www.emall.dla.mil

For More Information:

- DOE's Federal Energy Management Program (FEMP) Help Desk and World Wide Web site have up-to-date information on energy-efficient federal procurement, including the latest versions of these recommendations.
Phone: (800) 363-3732
www.eere.energy.gov/femp/procurement
- DOE has ENERGY STAR® room air conditioner model listings.
Phone: (800) 363-3732
www.energystar.gov
- DOE/FEMP lists air conditioners with low standby power.
<http://oahu.lbl.gov/>
- American Council for an Energy-Efficient Economy (ACEEE) publishes the *Consumer Guide to Home Energy Savings*.
Phone: (202) 429-0063
www.aceee.org
- Consumers Union publishes *Consumer Reports* magazine and the *Consumer Reports Annual Buying Guide*. On its Web site is a room air conditioner sizing calculator.
Phone: (800) 500-9760
www.consumerreports.org
- *Home Energy* magazine provides energy conservation tips on air conditioning.
Phone: (510) 524-5405
www.homeenergy.org
- Lawrence Berkeley National Laboratory provided supporting analysis for this recommendation.
Phone: (202) 646-7950

How to Buy an Energy-Efficient Room Air Conditioner

Why Agencies Should Buy Efficient Products

- Executive Order 13123 and 13221 and FAR section 23.704 direct agencies to purchase products in the upper 25% of energy efficiency and low standby power devices, including all models that qualify for the EPA/DOE ENERGY STAR® product labeling program.
- Agencies that use these guidelines to buy efficient products can realize substantial operating cost savings and help prevent pollution.
- As the world's largest consumer, the federal government can help "pull" the entire U.S. market towards greater energy efficiency, while saving taxpayer dollars.

Efficiency Recommendation

<i>Product Type^a and Cooling Capacity</i>	<i>Recommended EER^b</i>	<i>Best Available EER</i>
<i>with louvers; < 20,000 Btu/hr</i>	<i>10.7 or more</i>	<i>11.7</i>
<i>with louvers; ≥ 20,000 Btu/hr</i>	<i>9.4 or more</i>	<i>10.0</i>
<i>without louvers, < 8,000 Btu/hr</i>	<i>9.9 or more</i>	<i>9.6^c</i>
<i>without louvers; ≥ 8,000 Btu/hr</i>	<i>9.4 or more</i>	<i>10.5</i>

- a) Room air conditioning units with louvered sides are typically installed through windows. The louvered sides improve the energy performance of these units by enhancing airflow over the outdoor coil. Units intended for through-the-wall installation require a smooth-sided cabinet without louvers.
- b) Based on DOE test procedure; see 10 CFR 430, Sup-part B, Appendix F.
- c) Currently there are no models that can meet this recommendation. When purchasing a product from this category we suggest you get one with the best EER available.

The federal supply sources for room air conditioners are the Defense Logistics Agency (DLA) and the General Services Administration (GSA). DLA's FED LOG purchasing software includes EERs of room air conditioners and highlights complying models. GSA sells room air conditioners through its Multiple Awards Schedule program, as well as through its on-line shopping network, *GSA Advantage!* Look for products that meet the recommended efficiency levels.

When buying room air conditioners from a commercial source choose models that qualify for the EPA/DOE ENERGY STAR label (see "For More Information"), all of which meet the recommended levels. Some manufacturers and retailers display the label on

Definitions

Cooling Capacity is the amount of cooling that can be provided by the unit (in Btu/hr) at standard rating conditions.

EER, or Energy Efficiency Ratio, is equal to the measured cooling capacity of the unit (in Btu/hr) divided by its electrical input (in watts) at standard rating conditions.

Where to Find Energy-Efficient Room Air Conditioners



complying models. Alternatively, look at the yellow “EnergyGuide” label to identify models with EERs that meet the Efficiency Recommendation. For a contractor-supplied air conditioner, specify an EER that meets the recommended level for that type and size.

Oversizing of air conditioners, besides raising purchase cost, will lead to excessive energy consumption and poor humidity removal due to excessive on-off cycling. The required air conditioner capacity should be determined based on the referenced ACCA or Consumer Reports calculation procedures (see “For More Information”).

Many room air conditioners have remote controls or digital displays; these units also use standby power whenever they are plugged in, even if the air conditioner itself is “turned off.” Federal policy requires agencies to buy products with low standby power, at or below 1 watt where feasible (see “For More Information”).

Refrigerants with ozone-destroying chlorofluorocarbons (CFCs) were used many years ago in room air conditioners, but most existing equipment today uses HCFC refrigerants which have a much lower ozone-depleting effect; ask your supplier for information. When retiring an air conditioner which contains CFCs or HCFCs, the Clean Air Act requires that the refrigerant be recovered prior to final disposal of the appliance. For compliance information, contact the EPA Stratospheric Ozone Information Hotline at (800) 296-1996.

Sizing

Low Standby Power

Environmental Tips

Room Air Conditioner Cost-Effectiveness Example (10,000 Btu/hr - louvered)

Performance	Base Model ^a	Recommended Level	Best Available
EER	9.8	10.7	11.7
Annual Energy Use	765 kWh	700 kWh	640 kWh
Annual Energy Cost	\$46	\$42	\$38
Lifetime Energy Cost	\$530	\$485	\$440
Lifetime Energy Cost Savings	–	\$45	\$90

Definition

Lifetime Energy Cost is the sum of the discounted value of annual energy costs based on average usage and an assumed air conditioner life of 15 years. Future electricity price trends and a discount rate of 3.0% are based on federal guidelines (effective from April, 2003 to March, 2004).

a) The efficiency (EER) of the Base Model is just sufficient to meet current U.S. DOE national appliance standards.

Cost-Effectiveness Assumptions

Annual energy use in this example is based on the standard DOE test procedure for a louvered model with a cooling capacity of 10,000 Btu/hr and 750 operating hours per year. The assumed electricity price is 6¢/kWh, the federal average electricity price in the U.S.

Using the Cost-Effectiveness Table

In the example shown above, a room air conditioner with an EER of 10.7 is cost-effective if its purchase price is no more than \$45 above the price of the Base Model. The Best Available model, with an EER of 11.7, is cost-effective if its price is no more than \$90 above the price of the Base Model.

What if my Electricity Price or Operating Hours are different?

To calculate Lifetime Energy Cost Savings for a different electricity price, multiply the savings in the above table by this ratio: $\left(\frac{\text{Your price in } \text{¢/kWh}}{6.0 \text{ ¢/kWh}}\right)$. Similarly, for a different operating hours figure, multiply the savings by this ratio: $\left(\frac{\text{Your operating hours}}{750 \text{ hours}}\right)$.

Metric Conversions

1,000 Btu/hr = 293 watts

